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AN ESSAY

ON

"THE MILK SICKNESS"

OF THE HUMAN SUBJECT,

OR

"THE TREMBLES"

OF ANIMALS.

EMBRACING

ITS HISTORY, CAUSE, AND TREATMENT.

BY

SOLON BORLAND, M. D.

"In medio tutissimus ibis."

LITTLE ROCK, ARKANSAS.

R. K. DAWSON, PRINTER.

1845.

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Thomas W. Colescott, M.D.

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To JOHN R. BUCK, M. D.

LECTURER ON PRACTICAL MEDICINE, IN THE
"LOUISVILLE SUMMER SCHOOL OF MEDICINE."

My dear Buck,

Upon returning to the more congenial pursuits of our noble profession, after a truancy of two years, I would mark the renewal of my allegiance, with some tributary offering upon its time honored altars.—That partiality, which every mind cherishes for its own offspring, prompts me to do so, by seeking, in the garb of types, a more extended arena, than a single manuscript may command, for opinions carefully formed, and sincerely entertained, and to which several of my professional brethren, yourself included, have awarded the meed of their approval.

Under the circumstances which attended the composition of the following pages, of which I need not remind you, it is almost of natural right that I claim for their publication the auspices of your name. And it is a claim I the more strenously assert, as, while it secures me a favorable introduction to the reading public, it serves, also, to express, for you, my warm personal friendship, and my high admiration of those talents and acquirements which, having already conferred distinction, will ultimately advance you to the front rank of the profession. These sentiments of friendship and admiration, commencing with your professional career, have been augmented and confirmed by length of time, and the most intimate association.

Trusting that what you once approved, will lose nothing, in your estimation, by the new dress of a slight revision of style, to which it has been recently subjected,

I am faithfully and cordially yours,

SOLON BORLAND.

Little Rock, September. 1845.

THE MILK SICKNESS.

INTRODUCTORY REMARKS.

Writers on disease find but two avenues to usefulness: the one, by a contribution of newly discovered facts—the other, by the deduction, and practical application, of new inferences from facts already established. Inasmuch, therefore, as I make, in this instance, but slight pretension to the former—having few, if any, new facts to communicate; the merit, if any should be found in what I have to write, will consist in the use of materials, for which I am indebted to the labors of other observers.

In the outset, candor requires me to say that I have seen only *one* case of the peculiar and most remarkable affection, I propose to consider; and even that was not so malignant as to mark, with very geat prominence or distinctness, the characteristic features of the disease. From this, it will be understood that, in the *basis* of the following essay, I have done, and only intended to do, the work of a mere compiler of materials; while, to the *superstructure*, I am willing and desirous to sustain the relation of author—responsible for the matter, as well as the manner, of the performance. Of the views, theoretical and practical, that, in part at least compose this superstructure, and constitute its distinctive character, I feel bound to remark that, even if some minds should find them not intirely original or unfamiliar, yet, I am sincerely unconscious of having derived them from any other source than my own observation and reflection. And, of one thing I am quite sure, that, whether they be essentially good or bad, their archetype is either not to be found, at all, in the *ex cathedra* teachings and writings, or in the gene-

ral practice of the profession, for the last half century—or, that if there, it is scarcely more distinctly traced, within the amorphous mass of its native material, than is the poet-sculptor's ideal statue, within the unquarried marble, which depends for its development upon the plastic hand and apt chisel of the artist, himself. My warrant for saying so, consists in "some service" in the healing art, and no inconsiderable reading, for the last twelve years. Further than this, these views, of mine, must speak for themselves.

Within the range of unrestricted choice, there is, perhaps, no subject more meagre, in determinate professional learning, than the one I have selected. Erudition, however, is not always either precisely synonymous or commensurate with usefulness. But as the latter is the true and only "end and aim" of medical science, I have preferred an exploration of the rugged barrens of this peculiar affection, to a pleasant stroll through the richer and more cultivated fields of display.

This affection was unknown to most of the systematic authors; and is wholly unnoticed by them all. Eberle is the only one of them, who could have had any personal knowledge of it. Its meagre annals to be found only in periodicals, and even there sparsedly scattered; occurring in limited, and mutually remote, districts of country, and in communities possessing little opportunity, and still less qualification, for accurate observation; it can hardly, yet, claim a niche in the regular temple of disease. It may, rather, be considered in a transition state—from discovery to establishment; for there are those who, still, doubt, or affect to question, its peculiar existence. In my own mind, there is no such doubt or question; and, in this at least, I am sustained by the concurrent, and most enlightened, medical sentiment of the "Great West."

Milk Sickness, the name by which this disease is commonly known, is here adopted; not because it is deemed accordant with the true principles of nomenclature, but because it is better than any other that has, yet, been proposed. "*Sick Stomach*"—and "*Colica Trementia*," the other names that

have been proposed for it, are, obviously, much more vague and objectionable. In the present state of our knowledge of this disease, it is difficult, if not impossible, to characterize it accurately by a name. The two chief requisites for that purpose, its primary specific cause and its pathological anatomy are wanting. The one has, hitherto, eluded all attempts at discovery; and the other, depending as it must upon *post mortem* inspections, has been and will, doubtless, long remain undetermined, on account of popular prejudice, and other peculiar circumstances. Were the particular substance certainly known, whose poisonous qualities give origin to the disease, it might properly be characterized as a case of specific poisoning—as we now speak of poisoning with Arsenic, &c. Dissection would then make the definition complete, by revealing the particular seat and character of structural lesion. But this is not yet attainable. All that is known with certainty, on this point, is that the ingesta of phytivorous animals, feeding in certain localities, contain the specific poisonous agent; and that the milk, butter and flesh of these animals, are the media of its transmission to, and through, other animals. Analogy warrants the belief that all the secretions, as the *saliva* &c. are capable, by ingestion or inoculation, of doing the same kind of mischief; but of this there is no proof.

To ascertain with certainty, or make the nearest possible approximation to a knowledge of, the specific poisonous agent and the true pathology of this disease, are indispensable steps to its rational treatment. In order, however, to undertake these steps, with the best lights and under the most favorable circumstances, I will exhibit the disease as it actually occurred, partly under my own observation, in 1840, at Memphis, Tennessee, in the practice of the talented and accomplished friend, to whom I have inscribed these pages. Memoranda of these cases, at the time of their occurrence, were kindly furnished me by Dr. Buck; the *fifth*, occurring in his own person, being that already alluded to, as the only one ever seen by myself.

"*Case* 1. Mrs. T——, aged 30, fat, lymphatic aspect, the mother of four children, had been slightly indisposed for several days, with sick-stomach and slight tenderness and tumefaction of the abdomen. These symptoms she referred to menstruation, which had recurred a few days previous, and was much more copious than usual. She continued to attend to her household affairs, until the afternoon of 17th October, when vomiting came on. She took, during the ensuing night, several doses of *Morphine*, in all about *one grain and a half;* each dose arresting the vomiting for several hours. Next morning, the family physician was called in. He applied a large blistering plaster over the epigastrium, sinapisms to her feet, and gave her 20 grains of Calomel. At this time, as I have since learned from her physician, her pulse was about 110, small and feeble. There was, also, great tenderness of the abdominal region, and slight head-ache. The Calomel was repeated in the afternoon, and enemata were used; but the bowels remained unmoved. The vomiting continued throughout the day and the next night, with but little intermission; notwithstanding *Opium* was occasionally given, in doses of 4 or 5 grains. On the morning of the 19th, her physician requested me to see her. I found her lying on her back, with eyes and cheeks sunken, and that anxious excitement in the expression of the countenance, always so indicative of danger. Her pulse was too feeble and indistinct to be counted; respiration 26 in the minute; extremities cold and covered with a clammy sweat; and her breath of a *peculiar fœtor*. Resort was immediately had to stimulants, both external and internal, in the form of mustard foot bath, general frictions with dry mustard, brandy toddy &c. But she gradually sunk from this time until 2 o'clock next morning, when she expired. She was comatose several hours before death. No examination was made.

"*Case* 2. Mrs. K——, aged 28, sister-in-law of case 1, had been residing with and nursing her, during her illness, and was attacked in precisely the same manner, in the afternoon of 21st

October. I was soon called in; and found her vomiting, her skin warm, pulse 120 and moderately full, some tenderness and tumefaction of the whole abdominal region, and slight head-ache. She had been indisposed for a week past, with giddiness, listlessness, and a feeling of general *malaise*. I prescribed 10 *grains of Calomel—with* 1 *grain of Opium*, and a sinapism over the epigastric region. I also left 4 *pills of Morphine*, to be given *pro re nata* during the night, to restrain vomiting. At my visit next day—5 o'clock P. M. I learned she had passed a very restless and uncomfortable night; and had taken all the pills without relief. In the morning, before my arrival, the family physician had administered 20 *grains of Calomel*, and two enemata, without moving her bowels. Her condition was now decidedly worse than on the day before; presenting the same expression of countenance, and the same *fœtor of breath*, as Case 1. Her skin was cool and slightly moist, pulse 130—small and feeble, head ache increased, abdominal tenderness augmented—to such a degree that the weight of the bed clothes gave pain. I gave her a *Seidlitz powder*, and applied sinapisms to the calves of her legs. She slept about half an hour, while the mustard was drawing.—During the night she was cupped over the epigastrium, and felt much relieved by it, for several hours. The operation was repeated, but not with the like good effect. The Calomel had exhibited its specific action upon the salivary glands. At my visit, next day, she complained of a severe burning sensation in her stomach. I gave her 30 *grains of Bi-carb. Sodæ*, which afforded her more relief than any thing she had taken. She now slept soundly for an hour and a half; and awoke with some retching. The *Soda* was repeated, with the same good effect. This treatment was continued through the night, and the vomiting was completely arrested by it. Next morning, she complained of great prostration; and still had some nausea, with occasional retching. But these symptoms seemed to result rather from the salivation, than from the primary disease. A small dose of Laudanum and Camphor was now given, and

followed, during the night, with occasional small doses of Tinct. Camphor. This treatment produced very happy effects. She now took some cathartic pills, composed of rhubarb, aloes, and soap, which operated finely. Her appetite returned, and her convalescence was rapid. I saw her a few days since (about a month after the attack); and although she seems entirely recovered, and well, she suffers from occasional nausea.

"*Case* 3. Judy, a negro girl, aged 14, had been, for several weeks, living in the house with Cases 1 and 2, and had waited upon Case 1, the first day of her illness. On the evening of 19th October, she first complained of head-ache and sick-stomach. I did not see her for several days afterwards. She had, then, taken several doses of Calomel, and Soda powders; and sinapisms had been applied to her epigastrium and ankles. I found her complaining of the most violent pain throughout the abdominal region, and a constant disposition to vomit. Her pulse was 110, and full. I suggested the propriety of cupping her. This was done, and with the happiest effects. The operation was performed early in the evening, and she slept well all night. She continued to improve for several days; when I was again called to see her, on account of a recurrence of the vomiting. I gave her a tea-spoonful of Tinct. Camphor, which quieted her stomach; and I left her a dose of mild purgative pills. The pills operated kindly, and she was soon well.

"*Case* 4. I have only a general knowledge of this case.—It has never been under regular treatment; and, consequently, no accurate history of it can be had. Mr. T——, aged 34, husband of Case 1, was attacked, some time in September last, with nausea and vomiting; and has not been entirely free from it, a day or hardly an hour, since. Naturally a stout, healthy, muscular man, he has dwindled almost to a skeleton. In former attacks of a similar kind, for this is not the first—by several, he has usually succeeded in arresting it, by cold affusions, drinking lime water, and the use of active purgatives. But, in this attack, these remedies have been tried in vain. Active exercise will bring on a paroxysm of vomiting, but rest,

especially in the recumbent posture, keeps him comfortable. It should be mentioned, that at no period, since his first attack, has anorexia been complete; and although he has abstained from the use of milk, yet both butter and beef have been freely eaten by him.

"Several members of the same family have had slight attacks of a similar kind, during this fall; but they have yielded readily, so soon as the bowels have been freely opened. Mr. T. informs me that, about a year ago, he lost a fine healthy negro woman, whose disease was characterized by the same general symptoms.

"*Case* 5. In giving an account of this case, occurring in my own person, I shall be more precise, as to both symptoms and treatment, than in the preceeding cases.

"I had felt dull, heavy and listless, for several days, with impaired appetite; and awoke on the morning of 10th November, with slight nausea, a sense of general debility, and slight muscular tremors upon getting out of bed. I remained in my room, but not in bed, during the day—took very little food, and no medicine. About bed-time, I drank freely of brandy toddy, but was not relieved from the nausea. I slept pretty well; but awoke next morning with the most distressing nausea, slight head-ache, pulse 85—moderately full, strong throbbing of the abdominal arteries, respiration natural, skin natural, bowels constipated, no thirst, no appetite. Remaining in this condition until 2 o'clock P. M., I then took a large dose of *Sulph. Magnesiæ*, which operated freely—four or five times, but did not relieve the nausea. About bed-time, I took a dose of *Ipecac.* which was rejected almost instantaneously, and I continued to vomit all night, with scarcely any intermission. So protracted, violent and exhausting, had been the vomiting, that in the morning, when it ceased, I was hardly able to turn myself in bed. My pulse was, now, very frequent and feeble, and skin hot. I attempted to take a solution of *Carb. Sodæ;* but it was rejected before I could swallow the half of it. I then took an effervescing *Soda Powder*, omitting, in its preparation, half of the *acid*—thus leaving half of the *alkali* free. This was

not unpleasant to take, was acceptable to the stomach, and very effectually relieved the nausea; but the relief was only temporary, and the dose had to be frequently repeated. About an hour after each dose, a sensation of burning in the stomach, with nausea, would commence—sometimes vomiting, and would continue until the powder was repeated. This course was pursued (no food taken during the time) until the evening of the 15th, *five days* from the invasion of the disease. My bowels, then, had not been moved since the 11th. The nausea had ceased almost entirely, and appetite had partially returned. I now took a large dose of *Bi. Tart. Potassæ*, which moved my bowels freely. A *Soda powder* taken occasionally, for two days longer, completed the treatment.

"I have met with two other cases this season; but do not deem a mere repetition of the general symptoms and treatment, as foregoing, of sufficient importance, to trouble you with its detail.

"The farm upon which the first four cases occurred, as I have described them, is situated in Wolf River bottom, about a mile above its junction with the Mississippi. The soil, entirely alluvion, is heavily timbered, and covered with a rank undergrowth of indigenous vegetation. The mortality of stock, ranging in this particular neighborhood, is very great. And I am informed by my intelligent friend, Dr. Jas. M. Walker, that, a mile or so below Memphis, in the immediate vicinity of Fort Pickering, where the soil and vegetable growth are almost identical with those already described, the ground is fairly bleached with the bones of cattle. Dr. Walker has met with only one case of, what he considers, this peculiar disease, during this season; and, on enquiry of the woman with whom the patient boarded, he was informed that the *milk*, of which this patient had habitually partaken, was thinner than ordinary, and that the calf, immediately after sucking, would vomit like a child. Memphis, Tenn., Nov. 30, 1840. J. R. B."

Again: As an additional and important preliminary to the main questions, I will briefly examine the History of this affection—including its Localities, the Seasons of its prevalence, its Subjects, and its Symptoms.

The Localities of "Milk Sickness," so far as they have been ascertained, are limited to portions of some of the Middle, Southern and Western States of the Union. Its History, therefore, is just coeval with the settlement of those particular regions. It is common to the States of Virginia, North and South Carolina, Georgia, Alabama, Tennessee, Kentucky, Ohio, Indiana, Illinois and Missouri. Excepting these, I am not informed of its ever having appeared in any of the States or Territories of our own country, or, indeed, of any other country on the globe.

It has not been determined, by reliable observation, that there are any particular, and invariable, Geological features common to all these localities. As a general observation, however, it may be remarked that they are either mountainous, or in the vicinity of elevated lands; and abound in minerals. But, from this there are several known departures—and at least one striking exception. Some portions of Virginia and Kentucky are said to present this disease as an annual complaint; and these are mountainous and mineral. In North Carolina it occurs along the Yadkin River. In Georgia on the elevated table lands bordering the Chattahooche. In Ohio chiefly upon elevated flat lands abounding in pools of stagnant water. In Indiana between the Ohio and Wabash Rivers. In Tennessee it is met with in the, otherwise salubrious and delightful, Sequachee valley—in the valleys of Cumberland mountains—in Monroe, Blount and Franklin counties—among the "Mill-stone Knobs" of Sumner county, and abundantly along the waters of Goose Creek, which have their source among those "knobs." It is also encountered in the vicinage of Iron ore; and, in one instance at least, has occurred near an old and abandoned Lead mine. The last locality, in Tennessee, at which it has been observed, as already mentioned in Dr. Buck's cases, is the

vicinity of Memphis, in the county of Shelby. Shelby county forms the extreme south-western angle of the State. It is bounded north by Tipton county, east by Fayette county, south by the northern line of the State of Mississippi—N. Latitude 35°, and west by the Mississippi River, which separates it from the State of Arkansas. In common with the whole of the "Western District," it is of secondary geological formation*; and presents, probably, one of the best marked and most recent examples of that extensive alluvial region. Its soil contains very little sand, probably no calcareous matter, and, with some admixture of a very friable clay, consists almost intirely of loam and vegetable mold—particularly deep and rich on the bottoms, which have received the washings from the somewhat elevated ridges of an undulating surface. The only mineral substances, worthy of note, that have been found in this county, is a mass of rock on Wolf River, some ten miles east from Memphis, supposed to extend west, in deep-lying strata, to the Mississippi; and, in addition, occasional small masses of sand-stone stratified with iron ore, near the surface. Besides these, I may mention one or more small beds of carbonaceous matter†, some distance below the surface, near the margin of Wolf River, somewhere in the neighborhood of the village of Raleigh. It is the opinion of many persons, with whom I have conversed, that the whole soil is strongly impregnated with Nitrate of Potash, as is deemed manifest in the burning of wood and the taste of water. This has not, however, been verified by experiment.

I am not aware that any *peculiar* Botanical characters have been found common to the growth of these several localities. A dense and heavy covering of vegetation, so as to keep the soil damp and in deep shade, seems favorable to the development of the disease. Various specific vegetable substances have, at different times, been suspected as the source of mischief; but, upon a wider range of examination, have been found,

* Higgason on "Medical Topography and Diseases of West Tennessee," in Transylvania Journal, 1835.
† Ibid.

in equal if not greater abundance, in other and *unaffected* localities. I shall say more of this, under the head of *cause*.

The Seasons of the year, when Milk Sickness is most prevalent, have given rise to much diversity of opinion, as evinced by writers on the subject. This diversity may, however, in a great measure, be reconciled upon the ground that the diverse observations have been made at different places, and, although during seasons *nominally* the same, under very dissimilar conditions of the atmosphere, especially as regarded the degrees of heat and moisture. Thus, it is in no way paradoxical to say that, within the range of this disease—from southern Georgia to northern Missouri—"December's as pleasant as May," and *vice versa*. Indeed, that cases have occurred at every season of the year, there is little reason to doubt—and still less, that they are most prevalent during the seasons when vegetation is most active and abundant. If they occur in Winter, it is when the season is unusually mild—commonly during warm wet spells of weather. All observers agree that the disease *never* occurs in *very cold weather*. Let this be borne in mind.

The Subjects of this disease are to be found in every class and genus of animals; including man, and descending on the scale as low as observation has been made. Circumstances of age or of general health afford no protection. "This disease attacks the aged, the middle aged and the young; and, unlike most maladies, seems regardless of the partition wall which nature has erected between the different classes of animals. Cattle and sheep are continually its victims, when not confined to their enclosures. Deer are often found dead among the hills where the poison is supposed to exist; and their flesh imparts disease to animals using it as nutriment. Often when pursued in the chase their strength fails, and they are taken in an unusually short time, owing to disease; and the experienced huntsman, under the circumstances, refuses to eat them. Wild turkies, inhabiting the Mill-stone knobs, are frequently found unable to fly. Opossums, raccoons, foxes, wolves, and other

wild animals of prey, are often found dead near the carcasses of cows and sheep. Buzzards, and carrion crows, die in immense numbers about the putrid bodies of cattle. . . . . . Hogs* and dogs are its common victims, when the bodies of poisoned animals are not buried, or protected from them by an enclosure. . . . . Even poultry have been known to suffer with the disease, from feeding upon poisoned animals dying within their reach; while calves, colts and lambs, are its most frequent subjects, imbibing the malady with the mothers' milk." †

The Symptoms of this disease are thus summed up, by Prof. Yandell, in his admirable paper, to which I am indebted for the foregoing extract:

"In the lower orders of animals, languor, great thirst, constipated bowels, universal tremors, tossing the head from side to side, great rigidity of the muscular system, *a peculiar odor of the milk*, laborious respiration, the *breath offensive to the by-standers.* ‡ In man they are analagous. After the use of milk, butter, or recently slaughtered meat, in a longer or shorter time, the individual is attacked with a distressing sense of burning in the epigastium, followed in a few days, generally in a few hours, with vomiting. The sense of the burning is often compared, by the patient, to fire. Thirst insatiable. These symptoms are uniform, pathognomonic, and continue throughout the complaint. The bowels are constipated—sometimes

* My friend Mr. Dawson, the printer of this Essay, who was long a resident of Memphis, and whose accuracy I avouch, informs me that he has frequently seen large numbers of dead cattle in the woods about Fort Pickering, supposed to have died of Trembles; and that still larger numbers of hogs, after having fed upon the carcasses of the cattle, were found dead about them, and around the ponds of water which abound in that locality. In some instances, the putrid hogs were so numerous and offensive to the smell, as to forbid an approach near enough to count or examine them. This information is deemed valuable in several particulars. It extends the scope of the above observation, which was limited to the middle and eastern divisions of Tennessee; it confirms Dr. Walker's statement, as given in the conclusion of Dr. Buck's memoranda—page 12; and it exhibits that feature of locality, as mentioned on page 13, to be found in Ohio, and which Prof. Drake deems very important in the elucidation of the cause of this disease.

† Yandell on "Milk Sickness," in Transylvania Journal, 1828.

‡ Compare these with the facts stated in Dr. Buck's memoranda—pages 8, 9 and 12.

incorrigibly so, and when this is the case, the patient falls a victim to the disease on the third, fourth, or, at farthest, the fifth day. The pulse, at first natural, becomes in the sequel small, tense, vibrating, and often irregular. The epigastrium becomes tender to the touch. The skin is of very irregular temperature, the body being hot, and the extremities cold. The patient is distressed with a sense of burning in the palms of the hands, and soles of the feet. The tongue is clammy and covered with a white tough mucus, or is dry, red and shining. Great prostration attends from the beginning. There is no regular remission or exacerbation, no delirium, no pain in the head or back. Drinking aggravates the nausea and other gastric symptoms. A symptom much relied on by those conversant with the disease, is an odor of the patient's breath, *sui generis*, which they cannot describe."

Differing in a few particulars from the aggregate enumeration of other writers, and omitting some things noticed by them, this summary of symptoms, the most complete I have met with, is confirmed by all authoritative observation. Thus, some have noticed *head-ache*—I think it was present in all Dr. Buck's cases—while here it is said to be absent. And *thirst*, which is here said to be "insatiable," (and, by inference, present in all cases) has been intirely wanting in some instances. Among the omitted symptoms* is the *abdominal tumefaction*, which is now thought to be almost invariably present. Again, nothing is said of the *appetite*, which is now believed to be but little impaired. This last is particularly the case with animals; and is said to be availed of to administer, in the form of food, a remedy deemed highly efficacious.† The *pulse* is, here, said to be natural at first, but becoming, "in the sequel small, tense, vibrating and often irregular." Dr. Dixon, of Winchester, Tennessee, believes that "any deviation from a

* In true pathological *parlance*, this term should be "*sign*." And "symptom" is used, only, to preserve the unity of expression, through this division of the subject.

† *Indian Corn.* See Prof. Drake's Lecture, in "The Western Journal of Medicine and Surgery." 1841.

physiological condition of the circulation, or cutaneous surface, results from the violent and protracted vomiting*." This accords with my own very limited observation—in the 5th of Dr. Buck's cases. To me, the healthy beat of the arteries and pleasant feel of the skin, in that case, were truly surprising. Never, before, had I witnessed such a condition of them, and could hardly believe it possible, under the same amount of suffering. For one short period, only, did I notice any disorder of these usually vigilant sentinels of the system; and that was in the morning, after a night of violent and incessant vomiting. The pulse was then increased to about 100—still soft, and the skin was considerably augmented in sensible temperature—without moisture. And even this disturbance subsided, very speedily after the vomiting ceased. When disorder of the skin and pulse is not, thus, directly referable to the violent muscular exertions of vomiting, I regard it as indicative of great danger—perhaps of certain fatality. Even in Prof. Yandell's summary, already quoted, it is said to come on in the "sequel:" that is, as I understand it, towards the fatal termination of cases.

The "universal tremors" are invariably present. They give the name of "Trembles" to the disease, when it occurs in *animals;* and, in the *human subject*, have suggested to one writer that of "Colica Trementia."

This disease has, also, its *chronic* form—in which it presents the points of difference from the *acute* form, analogous to those commonly observed between the two forms of other maladies. It is said, also, to be peculiarly liable to *recurrence*, even with long intervals—some have thought at regular annual periods. The observations upon this point, however, are neither numerous nor satisfactory; leaving it fairly questionable whether this alleged recurrence, be in reality such, or some essentially different disease. And even when the sameness of morbid action has been fully established, there still remains good reason for believing that the subsequent attack, instead of being a mere consequence of the preceding one, is in reality the effect of a

* "Transylvania Journal," vol. 6, 1833.

new ingestion of the peculiar poison. In Dr. Buck's 4th case,* which, from the frequency of slight attacks, for many months in succession, would seem to favor the doctrine of its recurrence, as strongly as any that can, probably, be cited, it will be remembered that the patient, although he abstained from the milk, made free use of the noxious beef and butter; and was, in consequence, suffering new attacks of the same disease, and not recurrences of the first attack.

Many of the enumerated symptoms are sufficiently unique. But the most remarkable feature of this most remarkable affection is that it is rarely, if ever, *developed* by the direct and sole influence of its specific cause or poison—however concentrated its quality, or large the quantity in which it may be taken. The manifestations of morbid action usually await the excitation of undue muscular exertion, or some other hygienic irregularity. Even the vomiting of milk by the sucking calf†—a common occurrence, has been supposed, and with good reason, to result from his muscular efforts to obtain it, rather than from the direct morbific impression of the milk upon the stomach; his system having been disordered by milk previously taken. It is well ascertained that the poison may, and often does lie dormant in the animal system, for days and even for months; and, immediately consequent upon active exercise or impropriety of diet, it manifests its presence—sometimes with almost explosive force. In Dr. Buck's own case, the noxious beef, butter or milk—possibly all three, for he had eaten of all, must have been taken more than a week; when he ate a small piece of rich cake, of a kind which usually disagreed with him. Then, up sprung the whole morbid train of a peculiar and distressing disease. Working cattle, as horses and oxen, are often saved from an attack, by rest, although they had partaken freely of the poison; while labor speedily developes its effects, and they die—sometimes even in the harness. Female animals giving milk, as the cow, enjoy exemption from an attack;

* See page 10.
† See page 12

seeming, indeed, to be in perfect health, even while saturated with the poison, if the milk be regularly abstracted from them; and yet, at the same time, their milk and flesh, if eaten by other animals, will impart the peculiar poison. If their milk be not abstracted from them, the mere exercise of walking from pasture, is sufficient to destroy them.*

It has not been ascertained that any sensible peculiarity is common to the flesh or milk of animals sick of this malady, or when, in that condition just mentioned, without being sick themselves, they can impart disease to others. But it may be well to state that, in some cases related by Prof. Drake,† where death in the human subject followed dissection of cattle dead of "Trembles," a peculiar and offensive odor emanated from the flesh of these cattle, as soon as the skin was detached, and before putrescence had begun; and even after the tallow, then obtained, was made into candles, it emitted, while burning, the same odor to a degree so offensive, as to cause the candles to be thrown away. And in the case mentioned by Dr. Walker,‡ where "the milk was thinner than ordinary," I learned, upon further inquiry, that it emitted an offensive odor, very similar to that from some kinds of *Mushrooms.*

Of the *pathological anatomy* of Milk Sickness, in the human subject, nothing is known with certainty. *Post mortem* inspections of its victims have never been made. Analogy, however, warrants the belief that it is here the same as in the lower animals—some of which, as cows dead of Trembles, have been examined. In these, so far as observed, lesion of structure appears only in the stomach and first intestines; presenting there the "marks of inflammation in its various stages§." These

* Based upon these well known facts, is the common practice, in the western markets within reach of this disease, to put beef cattle on the run, immediately before purchasing. If they pass this ordeal without *trembling*, they are deemed safe for food; but should they exhibit the "universal tremors," mentioned by Prof. Yandell, (see page 16) they are, at once, rejected, and left on the drover's hands, probably to die.

† Lecture—*Loc. cit.*

‡ See page 12.

§ Prof Yandell—*Loc cit*

organs "are often gangrenous, and uniformly dry and hard, often as if exposed to the fire. Their contents are also dry, evidencing diminished secretion. No traces of disease have ever been observed in other organs; except that the lungs are, sometimes, preternaturally engorged with blood*." In the cow, then, in accordance with all the observation hitherto made, this disease is a *Gastro-enteritis*, of a peculiar type, and produced by a peculiar specific poison. In the *Human subject*, arising from the same cause, and manifesting similar symptoms, it may, in the absence of more certain means of knowing, be assigned a similar pathology, and considered essentially the same disease.

THE CAUSE OF MILK SICKNESS.

This is not known. Various articles of both the vegetable and mineral kingdoms—solid, fluid and æriform, have, at different times, been suspected and, in the estimation of some observers, convicted as the noxious agent. More extended and accurate examination has wholly acquitted some of these articles, and rendered *uncertain* the guilt of all the rest.

While much of the doubt and obscurity, which rests upon this point, results from a want of careful and systematic observation, I am persuaded that quite as much, perhaps more, may justly be ascribed to that malign spirit of exclusiveness—mental *Cyclopticism*—so dominant over the habits, even of those who deem themselves pre-eminently philosophical, and which has done so much to retard the true progress of scientific medicine. Memorable instances of the mischievous influence of this spirit, scarcely less numerous or malignant than the wars of the Metaphysicians, are furnished by the records of our profession. The ancient controversies of the Galenists and Chemists, and subsequently of the Humoral pathologists and the advocates of exclusive Solidism, not to mention more modern instances, are familiar to the medical scholar. In each of these, *truth* was measurably, if not wholly overlooked or forgotten, in the anx-

* Prof. Yandell—*Loc. cit.*

ious and often angry strife, for sectarian or personal ascendancy. But, "TRUTH NOT TRIUMPH"—should be the physician's motto.

Of the several doctrines alluded to, there was, doubtless, something good in each; but it was unperceived in the blindness, or disregarded by the selfishness of controversy. Each party saw or acknowledged truth, only, in its own opinions. Such, I believe, has been the case, in regard to the cause of Milk Sickness. True, the controversy in this instance has never become very warm or very bitter; but it is sufficiently apparent that, even here, the spirit of exclusiveness is at work. Almost every writer on this subject exemplifies the too common practice of most minds, to adopt an opinion first, and seek, afterwards, for the means of sustaining it. Then, the feelings of the contending parties, chafed by opposition and backed by pride of opinion, almost inevitably pervert the judgment, and not unfrequently confirm it in error. This is true, as well in relation to other subjects as to the one under consideration; and cannot have escaped general notice.

Those who have assigned specific causes to this disease, are divided, and resolutely arrayed against each other, upon the question—Is the cause which produces it, a *mineral* or a *vegetable* substance? Each party maintains *exclusively*, if not strenuously, the side of its espousal. And thus, in my opinion, restricts itself to a position not sufficiently elevated to allow of that free scope of mental vision, which is indispensable to a clear perception and just appreciation of the whole truth.

At the commencement of this inquiry, I was inclined, from the limited knowledge I had of the subject, to side with those who believe the cause to be exclusively a vegetable one. A careful, and I trust an impartial examination of the whole subject, and a fair estimate of the evidence on both sides, has induced me to believe that neither side is wholly right or wholly wrong—that truth lies between them—and that their chief error consists in their *exclusiveness*. Without rejecting well attested facts, it is impossible to doubt that the disease has, in some instances, been produced directly and solely by the ingestion of

a mineral substance; while it is equally well established that, in a large majority of cases, vegetable substances have been the agents in its production. I deem it unnecessary to set forth the several facts which sustain these positions; as they are of easy reference, in the papers cited in the foot notes; and as the plan of this essay is to embody the results of observation, rather than to detail the observations themselves. One statement, however, which has, with much seeming confidence, been opposed to a belief in a vegetable cause, I cannot forbear to notice. It is, in substance, that no disease produced by vegetable poison is liable to, or capable of recurrence, after its symptoms have once disappeared. And that as Milk Sickness is, thus, liable to recurrence, it cannot be of vegetable origin; but that it must be of mineral origin, as diseases from mineral poison, are those that, alone, are thus liable to recurrence.* Here the deductions are legitimate; but the premises are unfounded in fact.—Independent of the opinion already expressed†, and I think plausibly sustained, that a true recurrence of Milk Sickness never has been witnessed, I unhesitatingly and confidently assert that Toxicology, in its whole range, no where establishes the rule that *minerals* possess, exclusively, the power to reproduce their peculiar morbific impressions upon the animal organism, after they have once ceased. Besides, it is certainly true that some *vegetable* poisons *do* possess this power: an example of which, familiar to thousands of observers and hundreds of sufferers, is found in the *Rhus Toxicodendron*, or "Poison Oak."

Without undertaking to pass upon the name or essential properties of the specific agent in the production of this disease, the opinion I have formed of its character, and of its habitudes in this connection, may be stated thus: It is a *Mineral poison*, and is sometimes—rarely I apprehend—taken by the animal, directly from the soil or water; but generally, it is taken in the form of vegetable matter, which has derived its poisonous quality

*Shelton, White and McAnelly, in Transylvania Journal, vol. 9, 1836.
†See page 18.

from the soil on which it grew. In this view, it is easy to understand that a plant may be perfectly innocuous—esculent indeed, when growing in one locality, but virulently poisonous in another. It also avoids the, hitherto, supposed necessity of finding this noxious agent in some one particular plant.

That some plants, usually innocuous to animals—useful indeed as food, may and actually do draw poisons from certain soils, and produce disease in animals eating them, I am intirely convinced. From my boyhood, I have been perfectly familiar with one instance which, to my own mind, is conclusive of the fact. In my native county—*Nansemond, in Virginia*—on the point of land formed by the bifurcation of Nansemond River into its eastern and western branches, there is a field of about a hundred acres, which has been long in cultivation. This field was divided longitudinally by a hedge-row; the soil on one side of which was a rich black mold, abundantly mixed with oyster shells in various stages of disintegration; and that on the other side was of a lighter color, somewhat sandy, and freer from shells. Both sides of this field had, usually, been cultivated in Indian corn and peas. The only difference noticed between the *corn* grown on the opposite sides of the hedge-row, was the greater abundance of production on the black shelly soil. But of the *peas*, all being planted of the same kind, those grown on the black shelly soil were fatally poisonous to animals eating them; while those grown on the other side, upon the lighter sandy soil, were eaten with impunity. Repeated trials presenting the same results, shewed that corn might be grown with advantage on both sides of the hedge-row; but proved the necessity of ceasing to cultivate *peas* on the one side, and the safety of cultivating them on the other. What may have been the symptoms of the disease produced by these poisonous peas, or whether like occurrences are still to be observed in the same locality, I am unable to say; as my statement refers to a period before I had given attention to the symptoms of disease, and lapse of time may have witnessed great changes, alike in the character of those soils and their productions. But

the facts, as I have related them, were of my personal observation, and are still, I doubt not, notorious in the neighborhood of their occurrence. They establish the proposition, that of two soils lying even within a few feet of each other, only one contains a peculiar poison; and that, while one species of vegetable extracts that poison and imparts it to animals, another species is incapable of the same process. To the case of the poisonous peas, there is a parallel one, well authenticated, in the production of Milk Sickness itself. The cultivation of Clover, and of some other artificial grasses, upon the known localities of this disease, eradicates it for the time; but it re-appears with the indigenous growth of the soil, when the growth of the clover has ceased. In this case, it is evident that the clover supplants, for the time, the particular plant which extracts the poison from the soil, while the clover itself is incapable of extracting it. In the case of what I call the poisonous peas, it cannot be objected that the animal might have derived the poison directly from the soil, while feeding there; for the effects mentioned were first and chiefly noticed on another farm, several miles distant, to which the peas had been carried. As they were carted along the avenue, the few that were scattered on the ground poisoned and destroyed the fowls which were observed to eat them.

As with the matter, so with the form and consistence of this peculiar poison. Neither has been ascertained. Some circumstances tend to shew that it is solid and permanent—as the cooking of meat containing it, so far from dissipating or destroying, is supposed to increase and concentrate its virulence. From other circumstances, it would seem to be gaseous and volatile—as the dissection of animals dead of the disease it produced, has occasioned a similar disease in the persons making the dissections.*

That this poison is any of the salts of *Baryta*, or of *Arsenic*, as many contend, I cannot believe. The disease produced by it prevails where such substances donot exist. Besides, the

* Prof. Drake's Lecture—*Loc. cit.*

symptoms from the poison of Baryta, as well as from Arsenic, are widely different from those of Milk Sickness. Prompt and direct action upon the vital functions, generally attended with erosion of the mucous membrane with which they come in contact, and followed, invariably I believe, by *hypercatharsis*, are the characteristics of poisoning with the minerals named. Whereas, the poison of Milk Sickness is slow and indirect in its impressions, often lying dormant in the system, for days and weeks, as already mentioned, never seeming to act upon the stomach and bowels until it has been absorbed and reproduced there in the form of secretion—and its most prominent, perhaps its most pathognomonic symptom is obstinate *constipation* of the bowels. Indeed, the *en semble* of its symptoms sufficiently distinguish it from any *known* mineral poison.

The opinion, entertained by some, that this poison is identical with the miasm of autumnal fevers, or that it is even analagous to it, cannot be true. There is no coincidence either between the symptoms of the maladies to which they respectively give rise, or between the respective localities of those maladies.

I have already remarked that several species of plants have been suspected as the specific cause of this disease. Among these, may be mentioned the *Lobelia Inflata*, the *Eupatorium Ageratoides*, the *Bignonia Capreolata*, the *Rhus Venenata*, the *Rhus Toxicodendron*, some species of *Fungus*, or Mushroom, and the masses of vegetable matter growing at the bottoms of stagnant ponds of water. The fact, however, that each of these articles is to be met with in localities where the disease in question has never been known, establishes their innocence, in the estimation of those who hold to the doctrine of a purely vegetable cause and limit it to a specific plant. While, according to the views I have advanced, it detracts nothing from the probability of their guilt. Prof. Drake* thinks it not improbable that the poisonous vegetable, in this case, may be the *Rhus Toxicodendron*, changed or deteriorated in its character by growing in or near pools of stagnant water; as he found

* Loc. cit.

such a growth very abundant, in that region of Ohio where Milk Sickness and Trembles were most prevalent. I perceive no material discrepancy between this and the opinion I have advanced. The Professor further suggests, that if this poisonous agent be not in the *Rhus*, the probabilities indicate some species of *Fungi*. To this, I am much inclined to yield my assent. There are various reasons for believing that many cases of this disease may be traced to mushrooms. Indeed, I am strongly persuaded that, in the investigation of this confessedly obscure and difficult subject, the *Cryptogams* generally have been too little noticed, if not overlooked altogether. When it is considered that, wherever there is moisture and shade, these usually diminutive tribes of vegetable life put forth in great abundance, clothing the surfaces of trees, shrubs, and rocks of all sizes, shapes and *kinds*, the surface of the earth, and even water itself when stagnant, it is not transcending the bounds of a reasonable supposition to refer to them as probably, and perhaps most frequently, furnishing the vehicle of this poison. That several species, of the order *Fungus*, possess poisonous properties is well known. It is also known that they derive those properties from the character of their locality—the main appreciable conditions of which are dampness and deep shade*; conditions known, also, to be eminently conducive to the occurrence of Milk Sickness. In this connection, I would particularly remark one circumstance observed to be invariably common to

*The esculent mushrooms are the *Pratensis*, the *Chantarellus*, the *Deliciosus*, the *Cinnamomeus*, and the *Violaceus*—the localities of *all* of which are high, *dry* woods and pastures.

"The above are the only species that can be safely recommended as edible: though there are some other sorts which are frequently eaten by the country people; and it is propable the greatest part of those with firm fleshy caps might be eaten with safety, provided they were chosen from *dry* grounds. It is well known that soil and situation have a great influence upon the properties of plants; and these being of a singular nature, and absolutely between that of an animal and vegetable, may be more powerfully affected than a complete species of either, by reason they have neither leaves nor branches to carry off the noxious damps and vapors of a stagnant soil, as a perfect vegetable has; nor have they any gross excremental discharges, like those of a living animal. . . . . The common mushroom, which is in general esteem (though we have several others which are better) is not safely eaten when produced upon a *moist* soil." See "Encyclopædia Britannica," 1st American edition, Title *Agaricus*, page 230.

the growth of *Mushrooms*, and the existence of *Milk Sickness:* Neither is *ever* witnessed in *very cold weather**. Again: Both are most common during the periods of prolific vegetation, when there is abundance of heat and moisture; both occur, but less frequently, in autumn, when most other vegetation is retarded or suspended; and both occur, also, during warm wet spells of weather in winter time. Added to these, is the fact, in one instance at least, already stated†, that the milk, which produced a case of the disease, exhaled a strong odor of Mushrooms. This of itself would be of little worth; but, connected with the preceeding facts, is certainly intitled to consideration.

It does not conflict, at all, with the view I have presented, to admit both the *Rhus*, and some of the *Fungi*, as the mediate cause in question. Indeed, I find no insuperable barrier to a still greater extension of the catalogue of the mischievous plants. Observation, alone, should assign its limits.

All the circumstances considered, I am of the opinion that *Mushrooms*, more frequently than any or all other species of plants, are the cause of Milk Sickness.

In conclusion of this division of my subject, I would suggest, as not improbable, that a nearer approach, than has yet been made, to a knowledge of the essential character or actual matter of the poison of Milk Sickness, might be effected by analysing the milk, butter, or flesh of animals under its influence; or, by analysing the peculiar acid liquor so constantly accumulating in the alimentary canal, exciting the nausea, and finally producing the destructive inflammation. And nearer still, perhaps, by analyzing the soil, taken from an extensive surface of a certain locality of the disease.

* See page 15.
† See page 20

THE TREATMENT OF MILK SICKNESS.

Those who are conversant with Milk Sickness, donot seem to consider it a very formidable disease—provided its treatment be characterized by promptitude and vigor. It is much more apt to prove fatal in animals than in the human subject. This, I apprehend, is mainly on account of the violent muscular exertions with which they, usually, resist the administration of remedies. Thus, not only preventing the full and proper effect of medicines, but actually exacerbating the disease, by superinducing the action of one of the most certain and powerful of its exciting causes.

So far as I am informed, all the writers on this subject agree upon the general indications of cure. In regard, however, to the practical fulfillment of these indications—and more especially in regard to even the general principles which govern the medication, vague and discrepant notions seem to prevail.

That the *modus operandi* of medicines is an intricate and obscure region of medical philosophy, I well know; and that no one, however laborious and erudite, has attained a thorough knowledge of it. Nor is it my presumptuous purpose to attempt its exploration, here. Yet, some of its principles have been ascertained, and these may be appropriately styled the available *rationale of Therapeutics.* The number of practitioners, however, who regard, even if they understand these principles, is deplorably small. Humiliating as it may be, this is a truth that should be spoken—boldly spoken; for the ignorance or neglect it exposes, is the natural and prolific parent of the malpractice and routine quackery, which curse our country, and degrade the profession of medicine. Jeremy Bentham says: "No man is competent to make a Law, unless he can give a reason for it. Equally competent to the high function of lawmaking, without this condition, is the woman who washes your Majesty's shirt—ay! sir, or she who irons it*." That is to say,

*In his remarkable "Letter on Codification," written to the Autocrat of Russia; in acknowledgment of which he was presented with a splendid diamond ring. This present, however, he declined accepting; as it savored, to him, of individual compensation for what, in his world-wide philanthropy, he had designed as a gratuitous boon to the whole human race.

no man is qualified, or should be allowed, to prescribe rules of action, and above all to enforce their observance, in any case involving "life, liberty or property," unless he understand, alike, the nature of the evil complained of, and the powers and *modus operandi* of the remedy he would apply to its removal. I have introduced this passage from the great legal philosopher, not for the free and homely terms of its address to a crowned-head, which, by the way, are remarkable enough in a *transatlantic citizen;* but for the great and comprehensive *truth* it so wisely embodies, and inculcates with such apparent simplicity, yet striking and irresistible force. It is no less applicable to Medicine than to Legislation. What is *Therapeutics*? Surely, it is not the mere knowledge that one article of the *Materia Medica* will puke, and that another will purge! If so, no higher degree of intelligence, than that possessed by the *brute beasts*†, is required for its attainment. To be a Science, as unquestionably it is, it must teach us not only that certain effects result from the action of medicines, but it must shew us *how* the result is brought about—the principle of its production. In the development of this view, I will here introduce a few reflections, which I gave to the public, in a different connection, some two years since. "True, there occurred a number of cases, as will be found during the prevalence of all epidemics, no matter what the diathesis, so mild as to require no treatment at all. And it may be that most of the cases, however violent, would have yielded to other remedies, not so direct as blood-letting, but operating upon the same curative principle. It were well for science and humanity, if the simple and comprehensive truth, embraced in these admissions, could pierce the armor of those Polyphemi of the profession, who regard the most enlightened eclecticism as a medical Galilee, out which no good can come, and who would immolate whole hecatombs upon the altar of a *specific*. I have called this truth simple and comprehensive; and it is so. It pervades the Universe,

†Who has not witnessed manifestations of the instinct of Dogs and Cats, that prompts them to disgorge themselves of offensive matters, by means of some species of grass &c. which they eagerly and rapidly swallow?

and is an element in all the varied operations of nature. In all else, save the healing art, it is as familiar and as commonly admitted, as it is simple. It is this—That there are various ways and means, by which the same end may be attained—the same thing accomplished. To deny this, in relation to any thing else than medicine, would justly subject a man to the epithet of idiot or lunatic. Yet, no department of human affairs is more pregnant with its value, or more demonstrative of its force, than medicine. His "cases of emergency," alone, furnish to the practitioner conclusive proof of it. In them, by the use of means which, to the uninitiated, seem the most *outre* and unlike aught that had ever been applied to such purposes before, he is often enabled to accomplish the most important objects, simply by understanding that the same *principle* of action runs through various and dissimilar means. He who has never overcome constipation of the bowels by the use of the *lancet*, and sometimes, even, by a dose of *opium*, has, I apprehend, cultivated but a limited field of practical observation. It is told, in derision, of a Princess of England—perhaps her present gracious Majesty, that, upon hearing a portion of the liege subjects of her "free and happy country" were starving, she exclaimed: "I would eat bread and cheese, rather than *starve!*" And yet, culpably ignorant as she was of the condition of her people, this Royal lady was *wise*, in comparison with our medical exclusives and sticklers for specifics. *She* knew, intuitively perhaps, that the same principles of nutriment were to be found, alike, in the dainty luxuries on which she had fed, and in the very dissimilar articles of homely bread and cheese. But *they*—philosophers too! cannot be taught that, when we would reduce inflammatory action by means of *depletion*, the same principle may be brought into action, either by bleeding, purging, puking, sweating or regimen; the peculiar circumstances of each case rendering the one or the other of these remedies the more eligible*."

*From "Cases of Influenza, with Remarks. By Solon Borland, M. D., of Louisville." In "The Western Journal of Medicine and Surgery," vol. viii, October, 1843.

Can a disregard of the principles I have indicated lead to any thing more reliable than guess-work—to any thing better than a blind and blundering empyricism? The Mechanic, who works in senseless, inorganic iron, stone or wood, is never certainly and safely skillful, unless he know the capacity of his tools, the susceptibility of his materials, and the laws of relation which obtain in the action of the one upon the other. In other words, he must understand the *modus operandi* of tools—the *rationale of mechanics*. And shall less science be exacted of him, who operates upon the most complex and delicate organic apparatus —of him, in whose hands, under Heaven, are the "issues of life and death?" It is not demanded that he shall know *why* certain relations subsist between remedial agents and the animal organism. Nature is there inscrutable; and, doubtless, she will ever remain so. But it is within human reach to ascertain, and apply to human good, the laws of those relations. And this is the just, and should be the imperative requirement, that morals make upon the professors of the healing art, and that science enables them to comply with. "Thus, we know nothing of the cause of electricity, magnetism, of light, heat, gravity, &c., though it is highly probable that the different phenomena of light, electricity, &c., are all but different manifestations of of the same principle. Yet, we have ascertained the *laws* of light, of electricity, of heat, and so forth, with wonderful accuracy, and can, with the utmost precision, foretell what phenomena must take place when either of them is submitted to a particular experiment."*

*From "The Continental Historians. (French and German School.) By Francis J. Grund." In "Graham's Magazine," for October, 1845.

This article, from which I have derived the beautiful illustration of my subject, quoted above, is as remarkable for the sound philosophy of its thoughts, and the felicity of its style, as it is singularly out of place in so light a periodical. Nine-tenths of the *habitue* readers of "Graham" will turn from it, exclaiming—"flat, state and unprofitable!" While, in truth, it is of more real worth than the whole contents of that Magazine, for the last five years.

And as it comes to hand while this essay is in press, and since my chapter on "The Cause" has been printed, I must be excused for introducing, here, another quotation which, had it been received in time, would have been incorporated in the text of my 22nd page, or appended to it as a note, It so aptly and strongly confirms the view I have there presented, of the "spirit of exclu-

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P. 33-40 missing

and desiring aid from them, chiefly through their bulk and fluidity.

The *vegetable* cathartics, for obvious reasons, I would not use at all—except, perhaps, in convalescence; and then merely to keep the bowels soluble. For this purpose, my prescription would be pills, of ordinary size, composed of equal parts of rhubarb, aloes and castile soap, strongly flavored with some agreeable aromatic.

In all attempts at evacuating the intestinal canal, I would call in the assistance of *enemata*. By their use, not only would I obtain the benign and powerful influence of "orificial stimulation," but also lubricate the rectum, and a portion at least of the colon, and soften their contents. For these purposes, I can think of nothing better, than a strong, warm solution of *common brown soap*, used in large quantities, and often repeated.

Emetics, technically so called, I would never use, in this affection; and for reasons too obvious to require their enumeration. But should the nausea and other gastric distress be excessive, and unyielding to other means, I would aid the efforts at emesis, by giving copious draughts of warm water—to dilute the offending matter, and facilitate its ejection.

Of all the internal remedies, however, my chief reliance would be upon the *Alkalis*. Some practitioners say that, in this as in every other disease, their "sheet anchor of hope" is *Calomel*. I think I have done justice to that valuable, but much abused medicine, and assigned it a true and ample sphere of action. My "sheet anchor of hope" would, here, be an *Alkali*. Its expected action, obviously, is to neutralize the acid liquor in the stomach. Either one of this class, as occasion requires, may be used with advantage. The particular one preferred by Dr. Buck, and justly I think, was the *Carbonate of Soda*. In his own case, and in some others treated by him, this preparation was used with marked benefit. Indeed, it would not be too much to say the cure was effected by it *alone*. The promptness with which it relieved the nausea and gastrodynia was re-

markable. In these cases, it was administered in the form of an effervescing Soda powder; only one half the usual quantity of acid being used to produce effervescence, so as to leave a large portion of *alkali* free to combine with the acid contents of the stomach. No advantage, I apprehend, is ascribable to the state of effervescence; except that the liberated carbonic acid gas, which of itself is often competent to allay nausea, renders the accompanying Soda more palatable, and more certain to be retained. It is necessary to repeat the dose of this remedy very frequently—perhaps at intervals of one or two hours; for the re-accumulation of the offensive liquor in the stomach is very rapid, and demands the frequently renewed application of the corrective. *Lime Water*, or *Potash* will, either, fulfill the same indications, if rendered acceptable to the stomach. Of the latter, I have been informed, that a good preparation—one that has been used successfully in several cases of this affection, is a *weak lye of wood-ashes.*

Venesection.—With the generality of writers on this affection, Venesection, or general blood-letting, is not deemed necessary or admissible. Its disfavor, in this instance, appears to be much more just and reasonble than in most others. It seems rarely to be indicated here. In all disorders, the true condition for blood-letting is *too much force of the general circulation;* and, whenever resorted to, the use of this potent and valuable remedial agent should be continued, or repeated, until that undue force is overcome. If this rule were, always, judiciously and fearlessly observed, we should hear and read of, comparatively, few objections to general blood-letting. But in this affection, as before remarked, this remedy is rarely, if ever, indicated; for there is rarely any increase of the force of the general circulation. I have, already, expressed the opinion*, that any disturbance of the pulse, or of the temperature of the cutaneous surface, usually results from the violent and protracted exertions of vomiting, and is temporary. If, however, such disturbance should be present, and not referable to that cause—especially if

*See page 18.

the brain should be implicated, I would not hesitate to use the Lancet—use it freely—use it until the disturbance of pulse, skin and brain, had ceased.

I will remark, *en passant*, that I have derived less benefit from the use of general blood-letting in the simple phlegmasiæ of mucous membrane—especially in the alimentary canal, even when of a high grade, than in those of any other tissue. And, so far as my inquiries have extended, this accords with the experience of other practitioners.

Topical Bleeding, by means of *Cups*, I consider of great value, not only in this, but in every affection where local irritation or inflammation is present. Leeches are not proposed, because I donot think they would be so efficacious—and particularly because they cannot be commanded in the country, or country towns. I would resort to the use of Cups early in the treatment, and continue it to the close; covering the epigastrium and the whole abdominal region with cups, and abstracting blood freely from the internal capillaries. Thus, I would not only disgorge those vessels directly, but sustain their disgorgement, by establishing numerous points of counterfluxion on the surface. As auxilliary to this process, resort should be had to the revulsive action of Sinapisms over the abdomen, along the spine, and to the extremities. With the same view, hot and stimulating pediluvia would, doubtless, be very useful.

I have said nothing of *Opium*, and its preparations, which are of such general, and advantageous use, in ordinary cases of gastric distress, especially in the absence of general inflammatory action. I have omitted them, in this instance, because, although they have been freely used, there is little or no evidence of their having been productive of any good effect; and because their general constipating tendency contra-indicates them. Indeed, I think it may be fairly assumed, that much of the complaint of incorrigible bowels—the want of power in cathartic medicines, in this disease, may be ascribed to the large quantities of *opium* administered. *Calomel*, even in *twenty grain doses*, repeated every few hours, will, I apprehend, rarely prove

purgative—rarely excite the Liver to free secretion, when combined with *four or five grains of Opium*—which certainly restrict, if they donot intirely arrest, both the peristaltic motion and the function of secretion*. I would, however, use *Morphine* in small doses, if much pain were present, and would not yield to the other remedies I have mentioned.

When speaking of the Symptoms, I stated that, in this disease, the *appetite* of the patient is, usually, but little impaired. It is proper, therefore, to prescribe regimen as well as medicine. For this purpose, I would advise that the diet consist of *Corn-meal*

*I, here, recall to mind several cases, in which physicians have expressed their astonishment and complaints, to me, that purgative medicines would produce no effect; and, upon inquiry, I found that each dose had been composed, in part, of from one to two grains of opium. About four years ago, a most interesting case, of this kind, was presented to me, in consultation. The patient was a recently married young lady. The husband, evidently much distressed and alarmed, requested me to see her in consultation with the attending physician. I found her apparently comatose, with hot, dry skin, flushed face, respiration slow and laborious, pulse also slow, somewhat irregular, but not deficient in volume or force. With some exertion, she could be roused; but immediately lapsed back into obliviousness. This had been her condition for several days; during which, her bowels had been "incorrigible"—or in the language of the family, acquiesced in by the attending physician, "nothing could be made to pass lower than her stomach," although purgatives had been administered with frequency and perseverance. Upon retiring to another room, I stated to the physician in attendance that, to all appearance, the patient was under the influence of some powerful *narcotic*. From this he, rather pettishly, dissented. But upon inquiring into the history of the case, and his treatment, I learned that, within the last 48 hours, he had introduced into the system about *one hundred grains of Calomel*, in doses varying from ten to twenty grains, and with each dose had combined about *a half grain of Morphine*—equal to *two grains of Opium!* So the patient, a delicate young female, was actually laboring, and probably dying, under the heavy narcotism of about *fifteen grains of Opium!* And all for what? Why, to relieve a mild form of remittent fever, which the disease was, confessed to be, in the beginning, attended with some nervous agitation. Yet it was inconceivable why the bowels were unmoved! More *calomel* was proposed, by the attending physician. "No, sir," I replied, "remove the patient to another and better ventilated room, apply cold wet cloths to her head, sponge her whole surface, freely and frequently, with cold vinegar and water, and give her strongly acidulated drinks, as freely as she can be induced to take them. And if, in the course of a few hours, under this treatment, she be not greatly relieved, let her be bled from the arm, and have cups applied to the stomach, to the temples, and along the spine." Under the first part of my prescription, without resort to the lancet or the cups, the anticipated relief was realized; and as soon as the system was, thus, enabled to throw off this paralysing and stringent narcotism, which was the case in the course of seven or eight hours, the bowels resumed their excretory function. From this time, convalescence, though slow, was continuous. It is not necessary to speculate, here, upon the issue of this case, under a different course of treatment—or upon the length of time it would have required for one or two doses more, of *calomel* and *morphine*, to destroy the patient.

mush. My general reasons for this prescription are—it is sufficiently nutritious—is usually bland, unirritating, acceptable to the stomach, and is somewhat *aperient* when freely used. I am particularly induced to recommend it, because in that region of Ohio—"the Virginia Military District"—to which Professor Drake's observations were directed, in 1840, *Indian Corn* was the remedy almost exclusively relied upon, in the treatment of animals sick of "Trembles." To use his own words:—He "found among the people of the District, a total want of confidence in all cathartic *medicines;* and an exclusive reliance on *Indian Corn.* Some preferred old corn, some new, and others that which had been frost bitten. This is fed to all those species of animals that are accustomed to eat it, and is said never to be refused. The more the animal will eat, the greater the hope of the owner. It is said to produce *purging* when every other means has failed; and then, it is affirmed, recovery is almost certain. On these points he found but one opinion in the District. Several of the physicians, after trying other things, settled down on this."*

Again: The same writer, in speaking of the treatment of this disease, remarks: "Throughout the disease, *rest* is considered a *sine qua non* to the favorable effect of any measure; and of itself, in mild cases, sufficient; that is, if they be not aggravated by exercise, the disease will wear itself out, or spontaneously cease."†

I conclude, with one more quotation, on the treatment of convalescents:—"The action of the bowels must be kept up, and hearty meals avoided: but, above all, the patient must abstain from violent exercise. Dr. Toland had a patient, a girl, so far restored, that she ran down a chicken for the purpose of making broth. She suddenly relapsed, and died in twenty-four hours. Dr. McGarraugh has found Tonics of service, when the recovery was slow; and he thinks Chalybeates better than Bitters."‡

*Lecture, *Loc. cit.*
†Ibid.
‡Ibid.

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